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ESIC European Service Innovation Centre

# The transformative power of service innovation at regional level: lessons from ESIC

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## The European Commission has a long tradition with service innovation

- 2006-2007 **Innovation Policy Project in Services (IPPS)**
  - Mapping studies (the state of the art of service related innovation policy and activities)
- 2006-2012 **Europe INNOVA** initiative for the development, testing and promotion of new tools and instruments in support of innovation
  - E.g. KIS-IP which accelerated the uptake of service innovations
- 2009-2012 **European Policies and Instruments to Support Service Innovation (EPISIS)** project
  - Promoted development of service innovation at policy, strategy and operational levels

## Lessons learnt: Services are becoming increasingly important

- Services accounted for 93% of value added growth between 1990 and 2006 and for 82% of total value added in 2006
- Services accounted for 83% of total jobs in 2006
- Wage growth and skill levels in services are higher than in manufacturing
- Success of manufacturing depends on innovative services like design, marketing and logistics as well as on product related after-sales services
- Utilisation of service innovation often calls for improvement in supply-side drivers (skills, financing), demand-side drivers (public demand, customer proximity) as well as enablers (regulation, standardisation)

## EC ambitions: Europe 2020 Strategy

- Europe 2020 is the EU's growth strategy for the coming decade
  - In a changing world, EU should become a **smart, sustainable and inclusive** economy. These three mutually reinforcing priorities should help the EU and the Member States deliver high levels of employment, productivity and social cohesion
  - The EU has set **five ambitious targets** - on employment, innovation, education, social inclusion and climate/energy - to be reached by 2020
  - Seven flagship initiatives have been launched to help implement these ambitious targets, of which one initiative is the **Innovation Union**

## Europe 2020 targets

- **Employment:** 75% of the 20-64 year-olds to be employed
- **R&D:** 3% of the EU's GDP to be invested in R&D
- **Climate change and energy sustainability:**
  - greenhouse gas emissions 20% lower than in 1990
  - 20% of energy from renewables
  - 20% increase in energy efficiency
- **Education:**
  - reducing the rates of early school leaving below 10%
  - at least 40% of 30-34-year-olds completing third level education
- **Fighting poverty and social exclusion:** at least 20 million fewer people in or at risk of poverty and social exclusion

## Innovation Union

- **Innovation** provides real benefits for citizens, consumers, and workers. It speeds up and improves the way we conceive, develop, produce and access new products, industrial processes and services. It is the key not only to creating more jobs, building a greener society and improving our quality of life, but also to maintaining our competitiveness in the global market



# The role of services and innovation in services

- EC set up an **Expert Panel** to identify how services and innovation in services can help deliver the Europe 2020 Strategy  
([http://ec.europa.eu/enterprise/initiatives/esic/materials/expert\\_panel\\_report.pdf](http://ec.europa.eu/enterprise/initiatives/esic/materials/expert_panel_report.pdf))
- The Expert Panel has recommended to **raise awareness of the transformative potential of service innovation** and its contribution to EU competitiveness by developing a **European Service Innovation Centre (ESIC)**

## European Service Innovation Centre (ESIC)

- ESIC is a two-year initiative by DG Enterprise and Industry including 10 organizations from 7 countries (Ramboll (FI), Strasbourg Conseil (FR), Fraunhofer ISI (DE), MERIT (NL), VVA (UK), DAMVAD (DK), NESTA (UK), Technopolis (BE), Dialogic (NL), European Touch (FI))
- ESIC aims to capture and demonstrate the dynamics and (structural) impact of service innovation
- ESIC will help regions to test, update and improve their existing policies
- ESIC will boost emerging industries by the transformative power of service innovations
- ESIC will mobilize a versatile network of service innovation intelligence



# The concept of transformative service innovations

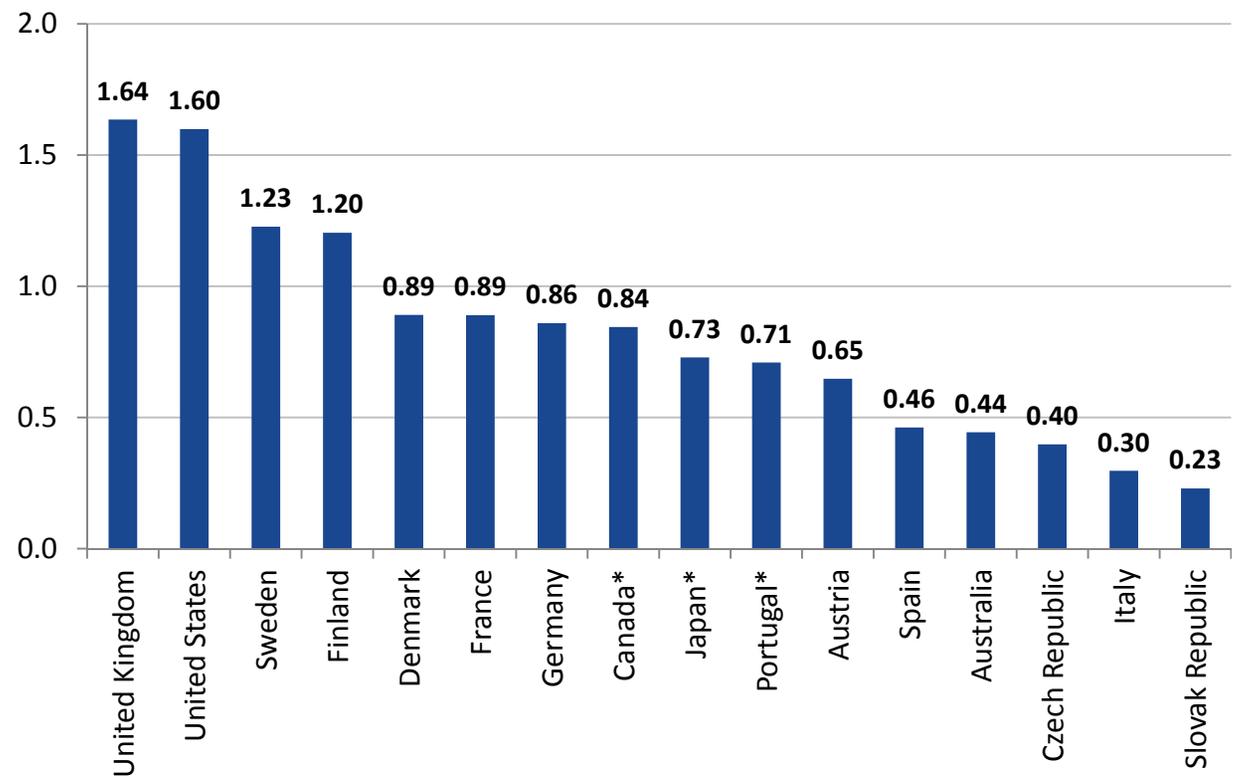
- “Services are transformative when they **disrupt traditional channels** to market, business processes and models, to enhance significantly customer experience in a way which impacts upon the value chain as a whole” (EC Expert Panel, p.7)
- In this way, service innovation is shaping emerging sectors, industries and markets and **contributes to structural change and industrial modernization** (The Smart Guide to Service Innovation, <http://s3platform.jrc.ec.europa.eu/documents/10157/0/Smart%20Guide%20to%20Service%20Innovation.pdf>)



# Services transform markets and feed into changing patterns of economic growth

- The share of investments in particular intangible asset categories is a good indicator of the structure of the economy
- Service innovations build on intangible assets directly and through the role of complementarities
- Services go further than manufacturing by offering, and building in, more intangibles such as expertise, feedback from experience, advice or relevant training and different thinking

Changing ratio of investments in intangible and tangible capital shaping future economic growth





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## The Expert Panel identified 3 service sectors that have this transformative capacity

- **Networking, connecting and brokerage services** which link consumers, firms and supply chains and improve the allocation and distribution of goods and information in society
- **Utilities and infrastructure services**, such as telecoms, energy and waste disposal, that increasingly provide higher value-added services for their customers
- **Knowledge Intensive Business Services (KIBS)** that collaborate closely with their customers to help upgrade their technology, organizational processes, and business models as well as transfer knowledge and experience across sectors



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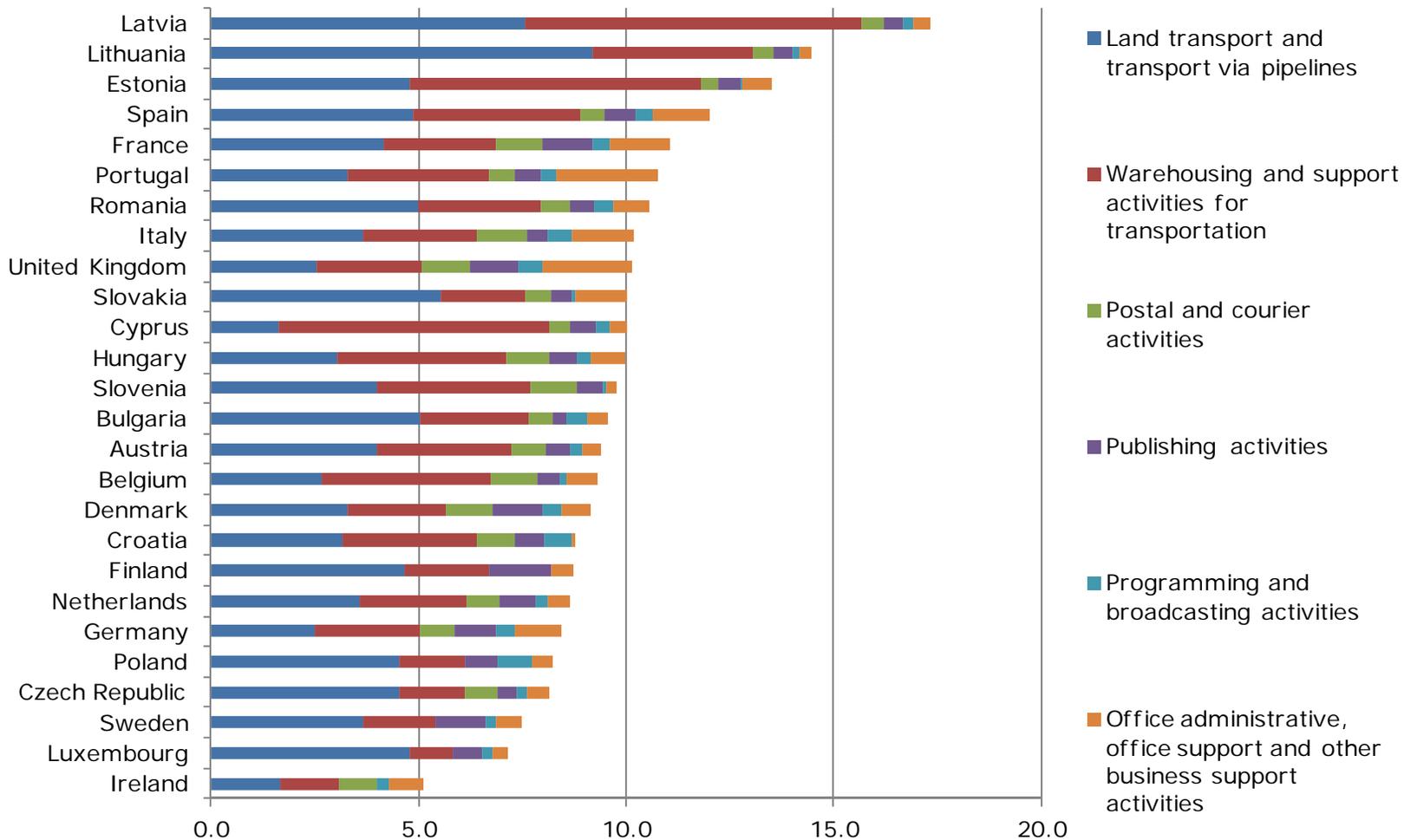
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# Networking, connecting, brokerage services Value added at factor cost, 2011 (% of total)



## Service sectors with transformative capacity (SSTC): Some indications

- High importance of services in European countries (value added, employment)
- These 3 service fields generate between 18.8% (Romania) and 50.5% (Luxembourg) of total gross value added (2008)
- Specific patterns in European countries and sectors
- BUT: It cannot be assumed that ALL companies in these sectors CONSTANTLY generate innovations -> only a (small) part of these activities is supposed to have “transformative power”
- No direct and linear effect, time effect!

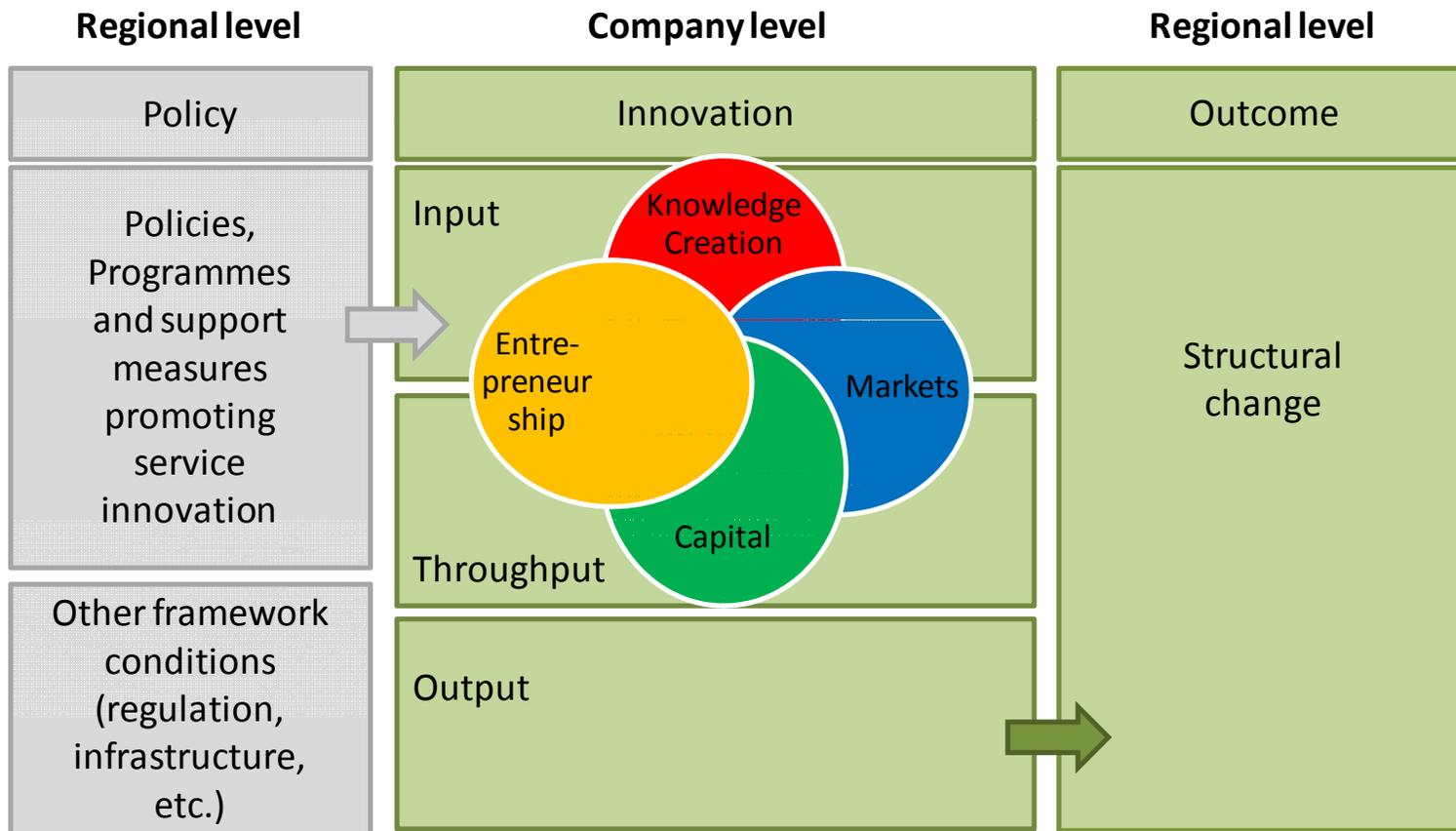
# European Services Innovation Scoreboard

- The European Service Innovation Scoreboard (ESIS) captures and demonstrates the impact of service innovation in terms of changing sectors and this will promote a better understanding of how service innovation can help regions to introduce positive structural changes



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# ESIS – Conceptual model



The model hypothesises a relationship between policies, service innovation, and the impact of the transformative power of service innovation, being structural change

	<b>Indicators</b>
<b>Wider framework conditions</b>	Institutions <i>(RCI composite)</i>
	Macroeconomic stability <i>(RCI composite)</i>
	Infrastructure <i>(RCI composite)</i>
	Higher education/Training and Lifelong Learning <i>(RCI composite)</i>
	Labour market Efficiency <i>(RCI composite)</i>
	Market size <i>(RCI composite)</i>
	Business sophistication <i>(RCI composite)</i>
	Attitudes to entrepreneurship
<b>Service innovation - Input</b>	Innovation expenditures by 1) Networking, connecting and brokerage services 2) Utilities and infrastructure services 3) Knowledge Intensive Business Services (KIBS)
	Share of innovators collaborating with others <b>(CIS)</b>
	Share of employees with a higher education degree
	Business R&D expenditures
	Share of researchers among employees
<b>Service innovation - Throughput</b>	Share of companies that introduced a service innovation <b>(CIS)</b>
	Share of companies that introduced a product or process innovation in 1) Networking, connecting and brokerage services 2) Utilities and infrastructure services 3) KIBS <b>(CIS)</b>
	Share of companies that introduced a marketing innovation in 1) Networking, connecting and brokerage services 2) Utilities and infrastructure services 3) KIBS <b>(CIS)</b>
	Share of companies that introduced an organisational innovation in 1) Networking, connecting and brokerage services 2) Utilities and infrastructure services 3) KIBS <b>(CIS)</b>
<b>Service innovation - Output</b>	Share of employment in <b>service innovation intensive industries</b>
	Share of turnover of newly introduced innovations (new to the world, new to the market, new to the company) <b>(CIS)</b>
<b>Outcomes</b>	Change in the employment share in 1) Networking, connecting and brokerage services 2) Utilities and infrastructure services 3) KIBS
	Change in the share of employment in knowledge-intensive services (KIS)
	Change in the share of employment medium-high and high-tech manufacturing

## Service innovation intensive industries

- Using micro-aggregated CIS data we identify those industries (across the whole range of private sector activities) as service innovation intensive that have either a significant share or growing share of firms with service innovations
- Calculate for the EUxx the share of firms introducing new innovative services for 2008 and 2010
- Service innovation intensive industries are:
  - The top 25% of industries having introduced service innovations in 2008 and 2010
  - The top 25% of industries having shown the fastest increase in service innovation between 2008 and 2010

	Data availability		% Service innovators	Rank	% Service innovators	Rank	Change	Rank
	2008	2010	2008	2008	2010	2010	08-10	
C10 Manufacture of food products	20	20	5.4	28	4.9	28	-0.5	16
C13 Manufacture of textiles	16	16	11.1	16	9.2	17	-1.9	22
C14 Manufacture of wearing apparel	15	15	6.1	27	5.7	26	-0.4	13
C16 Manufacture of wood and of products of wood and cork	19	19	7.2	25	6.5	25	-0.7	18
C17 Manufacture of paper and paper products	17	17	7.5	24	9.0	18	1.5	4
C18 Printing and reproduction of recorded media	21	21	13.3	13	13.4	12	0.2	10
C20 Manufacture of chemicals and chemical products	16	16	14.3	12	14.0	11	-0.2	12
C22 Manufacture of rubber and plastic products	18	18	10.4	18	8.4	21	-2.0	24
C23 Manufacture of other non-metallic mineral products	21	21	8.6	21	5.6	27	-3.0	27
C24 Manufacture of basic metals	16	16	9.9	19	7.3	23	-2.6	25
C25 Manufacture of fabricated metal products	21	21	8.9	20	8.9	19	0.0	11
C26 Manufacture of computer, electronic and optical products	18	18	21.3	8	19.7	8	-1.6	21
C27 Manufacture of electrical equipment	19	19	14.4	11	11.4	13	-3.0	26
C28 Manufacture of machinery and equipment n.e.c.	22	22	16.0	10	15.4	10	-0.6	17
C31 Manufacture of furniture	19	19	8.1	23	7.6	22	-0.5	14
C32 Other manufacturing	17	17	12.4	14	10.4	16	-2.0	23
C33 Repair and installation of machinery and equipment	20	20	11.0	17	11.3	14	0.3	8
G46 Wholesale trade, except of motor vehicles and motorcycles	20	20	7.2	26	6.7	24	-0.5	15
H49 Land transport and transport via pipelines	17	17	8.5	22	8.8	20	0.3	9
H52 Warehousing and support activities for transportation	16	16	11.8	15	10.8	15	-1.0	19
J58 Publishing activities	22	22	22.7	6	26.7	4	4.0	1
J61 Telecommunications	19	19	35.0	3	37.0	3	2.0	3
J62 Computer programming, consultancy and related activities	22	22	39.5	2	43.3	1	3.8	2
J63 Information service activities	19	19	24.8	5	26.0	5	1.2	5
K64 Financial service activities, except insurance and pension funding	21	21	26.4	4	23.4	6	-3.0	28
K65 Insurance, reinsurance and pension funding	21	21	39.8	1	40.6	2	0.8	6
K66 Activities auxiliary to financial services and insurance activities	19	19	17.4	9	16.4	9	-1.0	20
M71-M73 Architectural and engineering activities; technical testing and analysis; scientific research and development; advertising and market research	16	16	21.8	7	22.3	7	0.6	7

## Regionalization of CIS data (1)

- Community Innovation Survey are used for 7 indicators:
  - Innovation expenditures
  - Innovators collaborating with others
  - Companies with service innovations
  - Companies with product or process innovations
  - Companies with marketing innovations
  - Companies with organizational innovations
  - Turnover of newly introduced innovations
- ***Regional level aggregated data are not available***

## Regionalization of CIS data (2)

- For ESIS we **calculate regional estimates** for the indicators using CIS data by
  - Assuming that national “intensities” or “shares” observed at the industry level also apply at the regional level
  - Using real regional data on employment and number of firms we can then estimate the corresponding regional CIS data

## Methodology (using product/process innovators (PI) as a reference indicator)

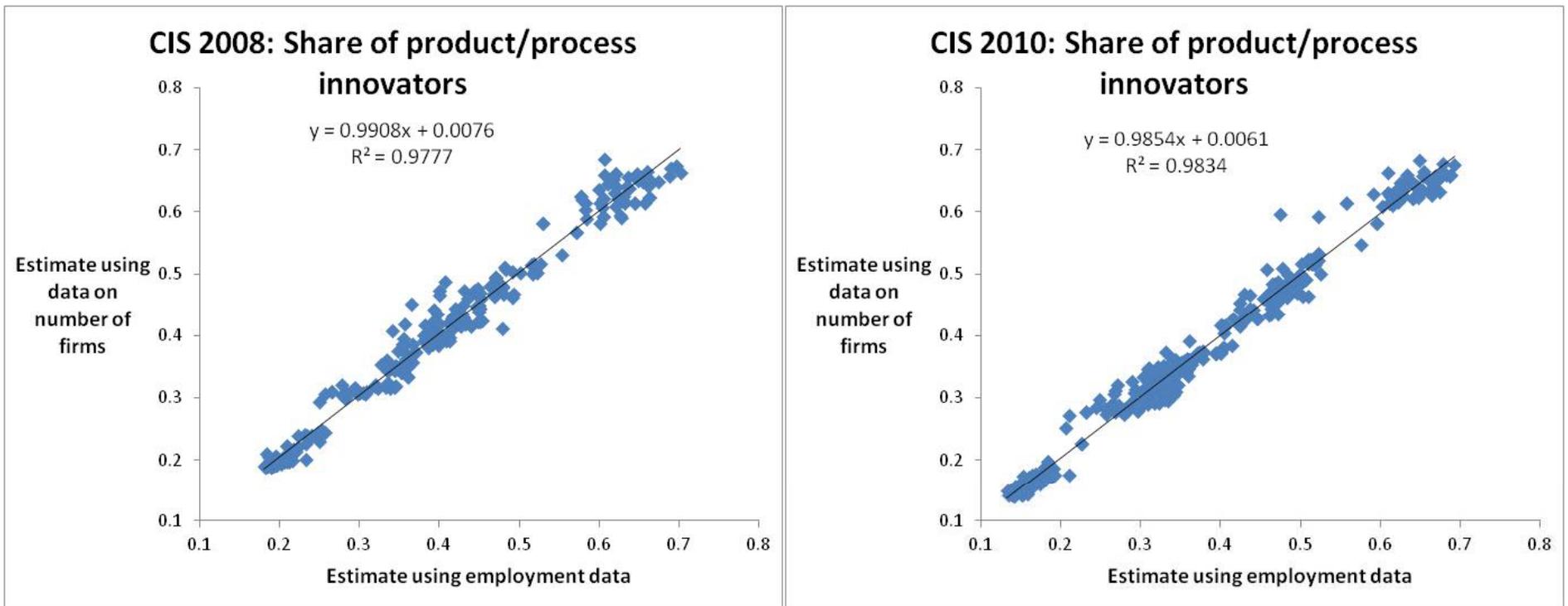
1. Calculate for each country the share of firms with product /process innovations (PI) for each industry  $I$  ( $PI_I$ ) using CIS country level data
- 2a. Calculate the employment share of industry  $I$  for region  $R$ :  $EMPL_{R_I}$
- 2b. Calculate for region  $R$  the estimate for the share of firms with PI ( $PI_{R_I\_EMPL}$ ) as the sum across all industries of  $EMPL_{R_I} \times PI_I$
- 3a. Calculate the share of enterprises of industry  $I$  for region  $R$ :  $ENTR_{R_I}$
- 3b. Calculate for region  $R$  the estimate for the share of firms with PI ( $PI_{R_I\_ENTR}$ ) as the sum across all industries of  $ENTR_{R_I} \times PI_I$
4. Calculate the regional share of product innovators  $PI_{R_I}$  as the average of  $PI_{R_I\_EMPL}$  and  $PI_{R_I\_ENTR}$



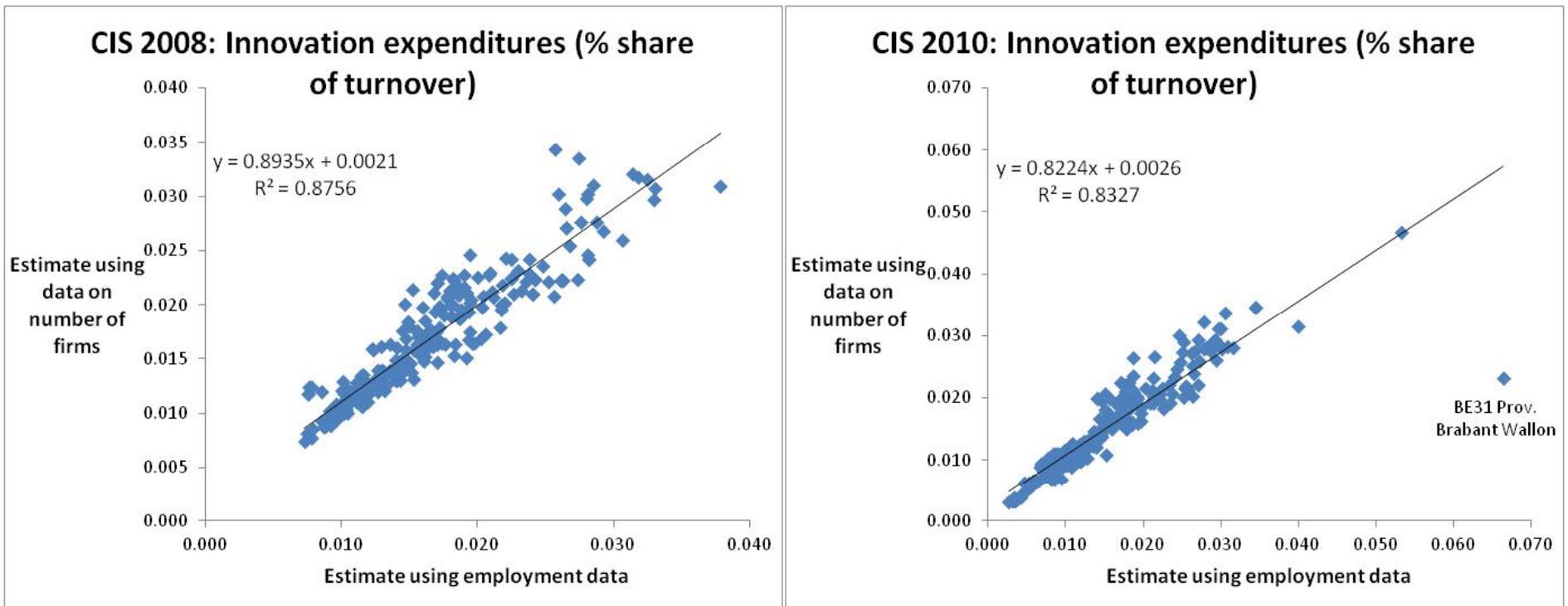
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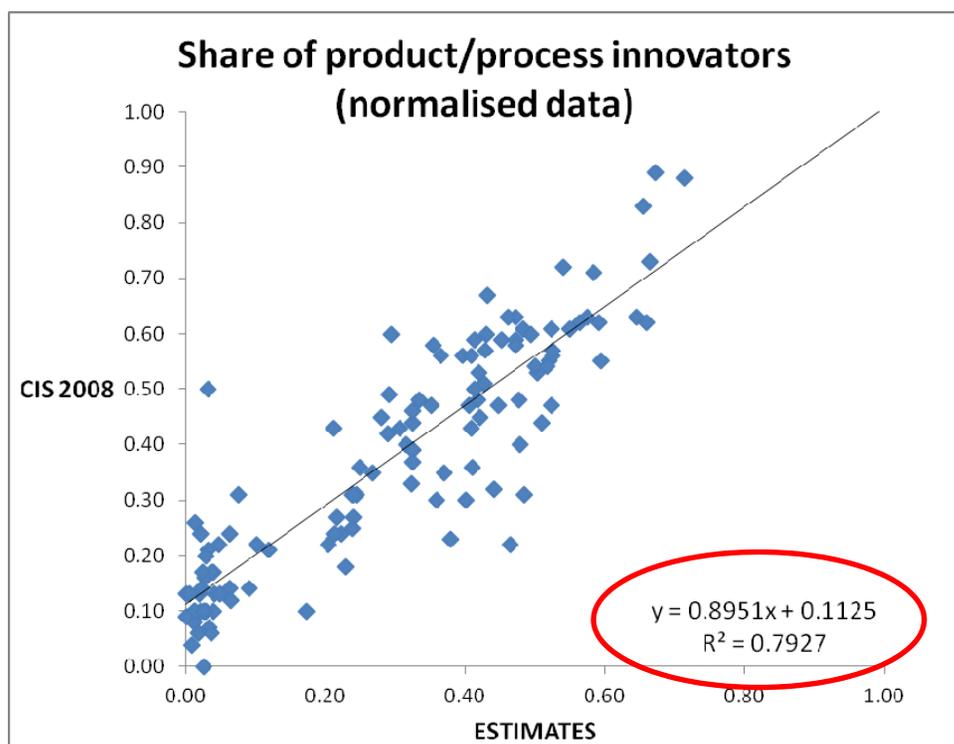
# Comparable estimates using employment data or data on number of firms



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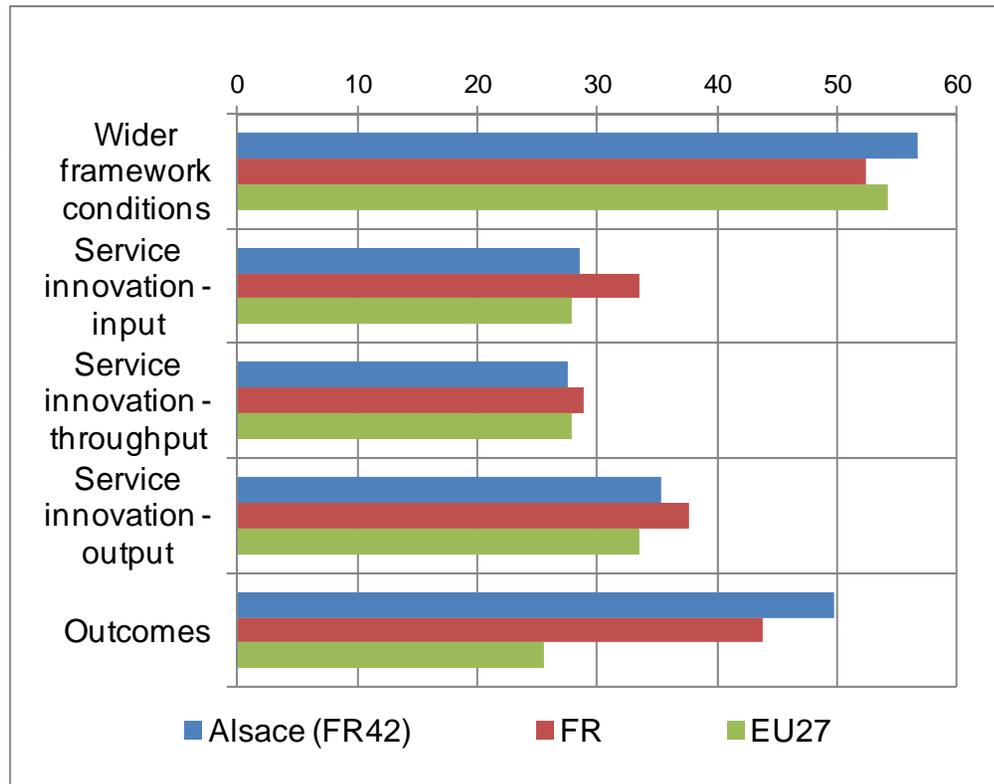


## Quality check: Reasonably good fit for product/process innovators (data for 120 regions)

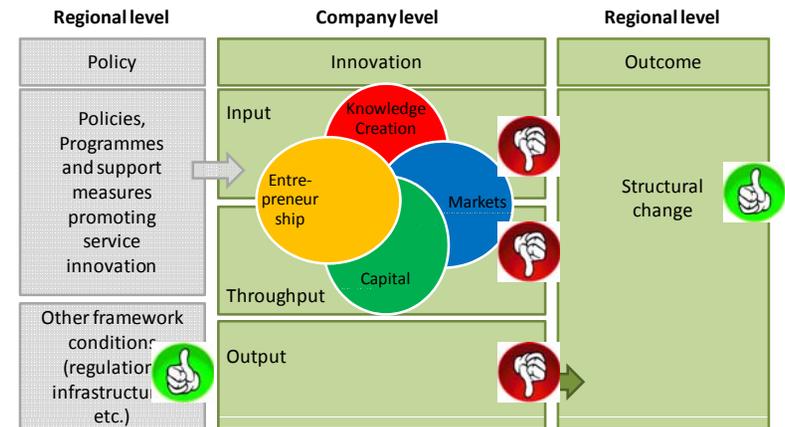


- Normalised regional CIS 2008 data are available for a limited number of indicators from the *Regional Innovation Scoreboard 2012* report
- Estimates are for all firms
- RIS CIS 2008 data are for SMEs

# An example: Alsace



Alsace ESIS structure is not too different from that of FR, with better performance in Wider framework conditions and Outcomes and worse performance in Services innovation (Input, Throughput and Output)

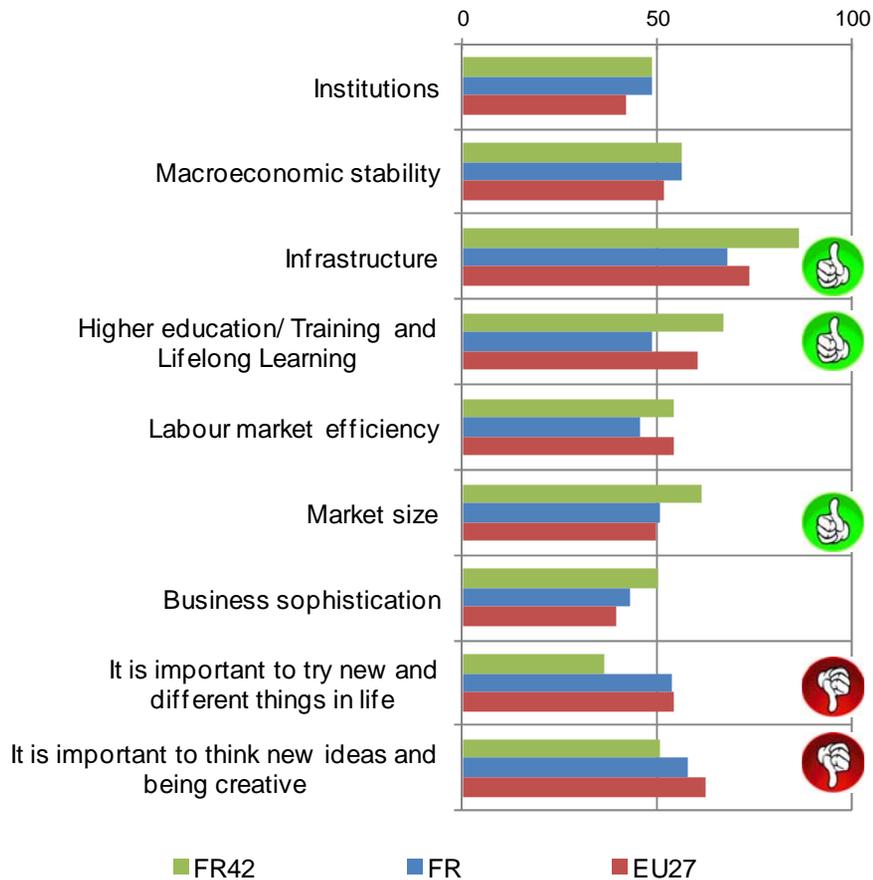




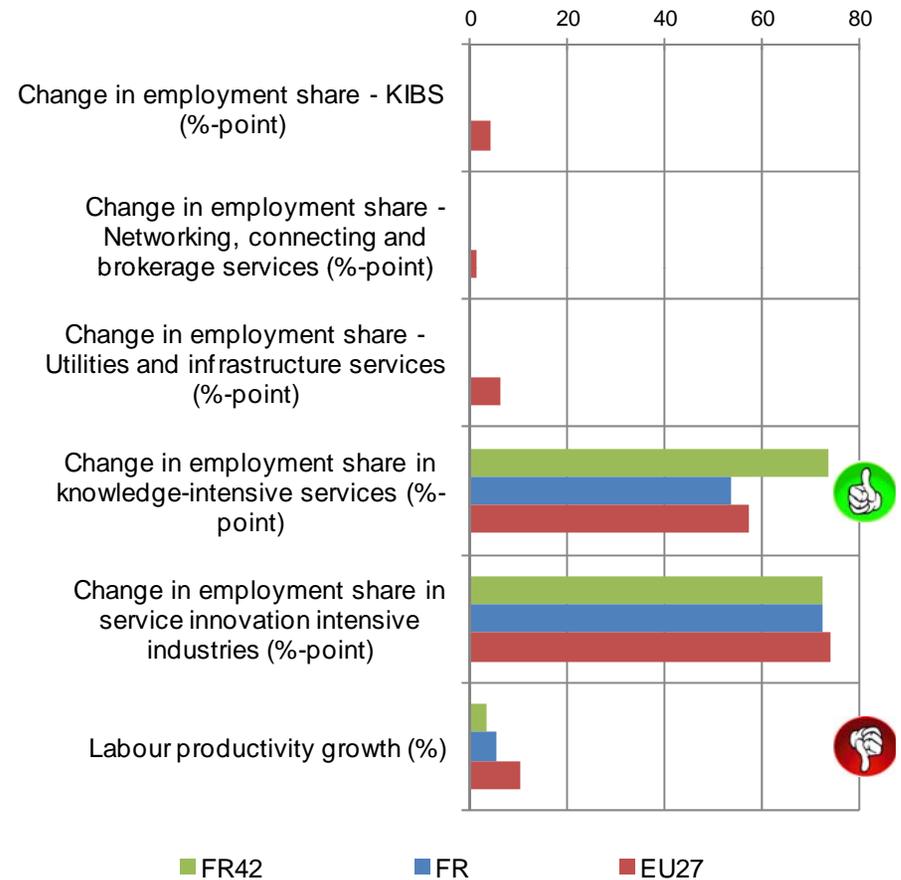
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## Wider framework conditions



## Outcomes

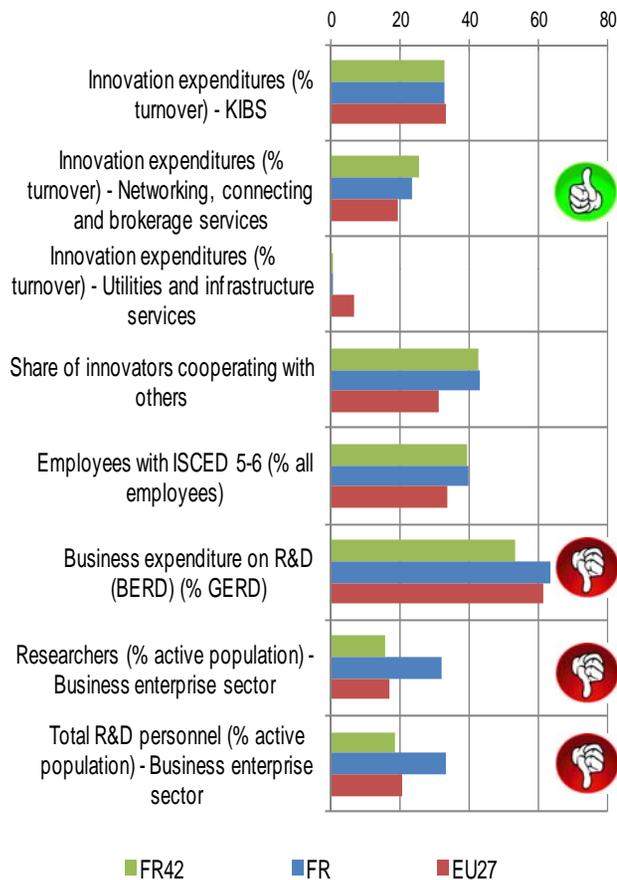




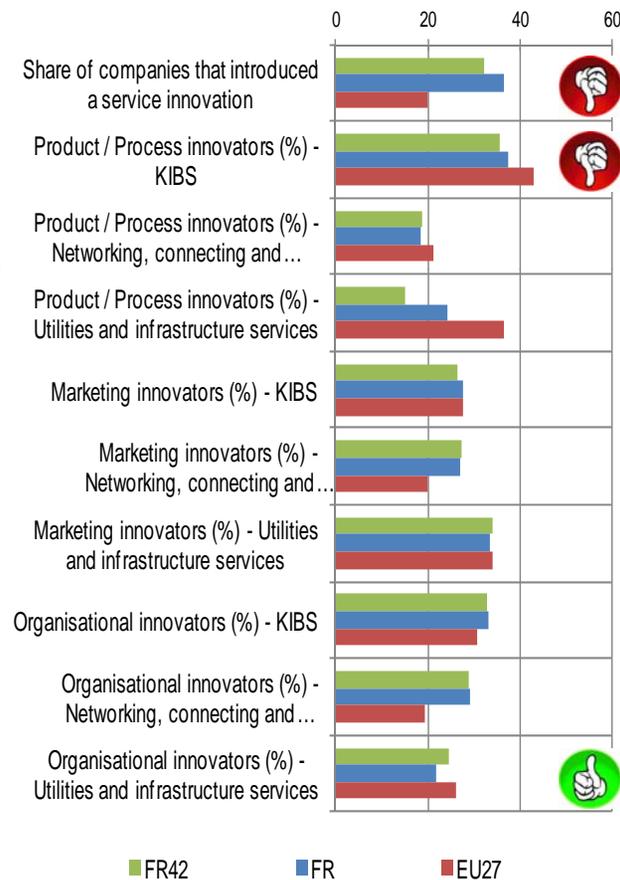
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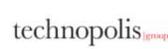
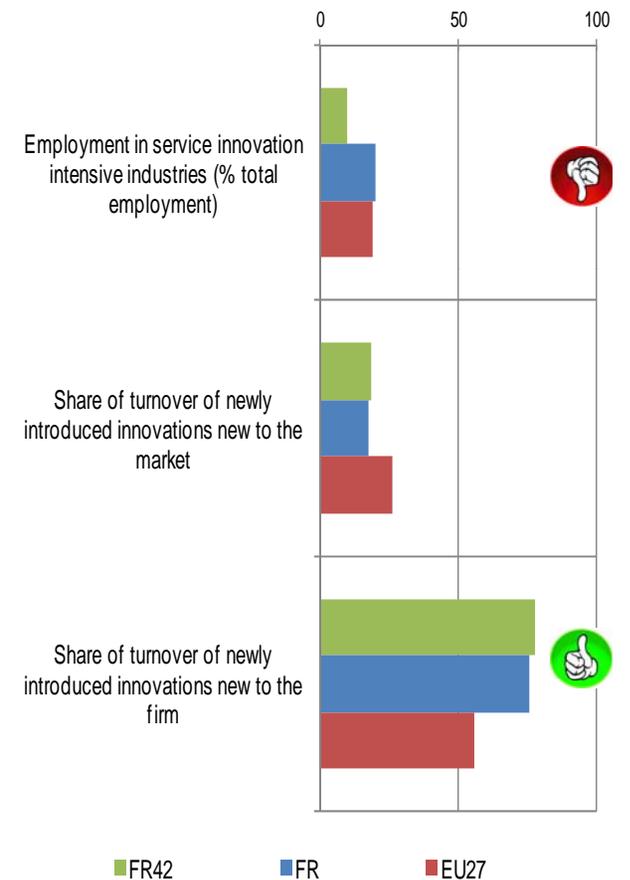
## Service innovation - input



## Service innovation - throughput



## Service innovation - output



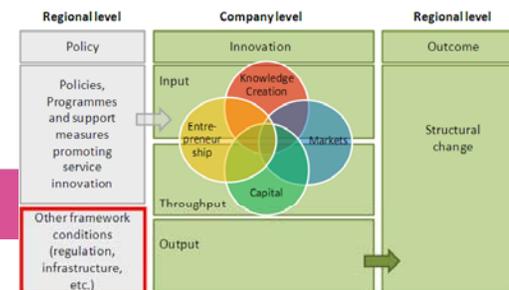
## Needed: complementary qualitative approach

- The concept of the 'model demonstrator region' or 'large scale demonstrator' is the cornerstone of a new systemic approach launched by the European Commission that aims to foster economic growth by addressing a specific problem or societal challenge through service innovation and under real life conditions
- The model demonstrator regions that are the primary focus for the ESIC initiative are the Canary Islands, Emilia-Romagna, Limburg, Luxembourg, Northern Ireland and Upper Austria
- The demonstrators will show how solutions can, or sometimes maybe even cannot, be rolled out at regional and national level with manageable risk. The transnational linking of these demonstrators also provides an opportunity to develop a Europe-wide policy framework for shared learning.



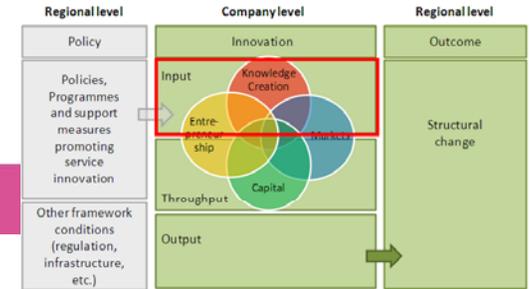
## More info

- ESIC website:  
[http://ec.europa.eu/enterprise/initiatives/esic/index\\_en.htm](http://ec.europa.eu/enterprise/initiatives/esic/index_en.htm)
- Hugo Hollanders  
MERIT, Maastricht University  
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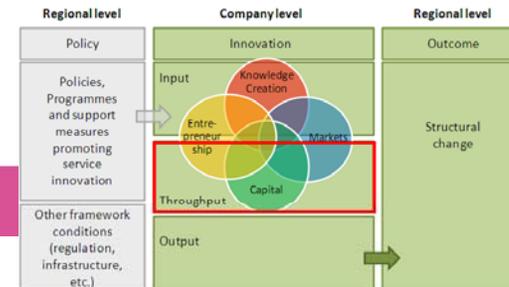
## Wider framework conditions

ESIS indicators	Data source
Institutions	<i>Regional Competitiveness Index</i> : Composite indicator, Country level only
Macroeconomic stability	<i>Regional Competitiveness Index</i> : Composite indicator, Country level only
Infrastructure	<i>Regional Competitiveness Index</i> : Composite indicator
Higher education	<i>Regional Competitiveness Index</i> : Composite indicator
Labour market Efficiency	<i>Regional Competitiveness Index</i> : Composite indicator
Market size	<i>Regional Competitiveness Index</i> : Composite indicator
Business sophistication	<i>Regional Competitiveness Index</i> : Composite indicator
Attitudes to entrepreneurship	European Social Survey Two indicators: It is important to try new and different things in life, It is important to think new ideas and being creative



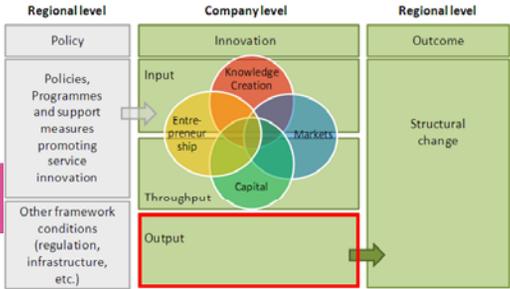
# Service innovation: inputs

ESIS indicators	Data source
Innovation expenditures by <ul style="list-style-type: none"> <li>• Networking, connecting and brokerage services</li> <li>• Utilities and infrastructure services</li> <li>• Knowledge Intensive Business Services (KIBS)</li> </ul>	Community Innovation Survey: <b>"Regionalized" estimate</b>
Share of innovators collaborating with others	Community Innovation Survey: <b>"Regionalized" estimate</b>
Share of employees with a higher education degree	Labour Force Survey
Business R&D expenditures	R&D statistics
Share of researchers among employees	Community Innovation Survey: <b>"Regionalized" estimate</b>



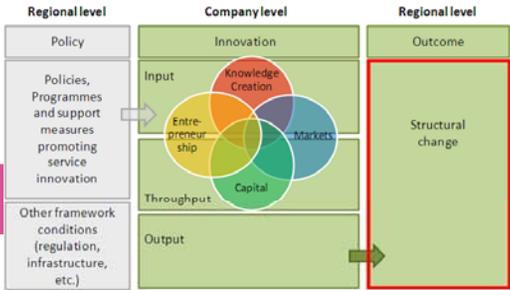
# Service innovation: throughputs

ESIS indicators	Data source
Share of companies that introduced a service innovation	Community Innovation Survey: "Regionalized" estimate
Share of companies that introduced a product or process innovation in <ul style="list-style-type: none"> <li>• Networking, connecting and brokerage services</li> <li>• Utilities and infrastructure services</li> <li>• Knowledge Intensive Business Services (KIBS)</li> </ul>	Community Innovation Survey: "Regionalized" estimate
Share of companies that introduced a marketing innovation in <ul style="list-style-type: none"> <li>• Networking, connecting and brokerage services</li> <li>• Utilities and infrastructure services</li> <li>• Knowledge Intensive Business Services (KIBS)</li> </ul>	Community Innovation Survey: "Regionalized" estimate
Share of companies that introduced an organisational innovation in <ul style="list-style-type: none"> <li>• Networking, connecting and brokerage services</li> <li>• Utilities and infrastructure services</li> <li>• Knowledge Intensive Business Services (KIBS)</li> </ul>	Community Innovation Survey: "Regionalized" estimate



# Service innovation: outputs

ESIS indicators	Data source
Share of employment in <i>service innovation intensive industries</i>	Structural Business Statistics: ESIC calculations
Share of turnover of newly introduced innovations (new to the world, new to the market, new to the company)	Community Innovation Survey: <i>"Regionalized" estimate</i>



# Outcome

ESIS indicators	Data source
Change in the employment share in <ul style="list-style-type: none"> <li>• Networking, connecting and brokerage services</li> <li>• Utilities and infrastructure services</li> <li>• Knowledge Intensive Business Services (KIBS)</li> </ul>	Structural Business Statistics
Change in the share of employment in knowledge-intensive services (KIS)	Structural Business Statistics
Change in the share of employment medium-high and high-tech manufacturing	Structural Business Statistics
Labour productivity growth	Structural Business Statistics